

source having an impedance. Claim 2 further recites an electrical structure, formed on the substrate and coupled to the interface port and the electrode, an impedance of the optical modulator including the interface port and the electrical structure being substantially equal to the impedance of the signal source.

The Action relies on Gopalakrishnan for all the features recited in claim 2. In particular, the Action points to the modulator shown in FIG. 2 and described at cols. 6 and 7 of Gopalakrishnan. Referring to FIG. 2 of Gopalakrishnan, the optical modulator includes resonator structures 214 and 218 formed in a ring structure. As described at col. 6, ll. 25 through col. 7, l. 1, the ring resonator structure eliminates the need for terminal impedance.

Nowhere in Gopalakrishnan is there a disclosure or suggestion of an electrical structure, formed on the substrate and coupled to the interface port and the electrode, an impedance of the optical modulator including the interface port and the electrical structure being substantially equal to the impedance of the signal source. Since Gopalakrishnan fails to disclose or suggest all the features recited in claim 2, claim 2 is considered allowable over Gopalakrishnan.

Independent claim 11 recites similar features as claim 2 and is considered allowable over Gopalakrishnan for at least the same reasons.

Independent claim 9 recites a resonant optical modulator, comprising an electro-optical substrate, an optical waveguide formed in the substrate and having a variable index of refraction, an active modulator electrode having a termination to ground and formed on the substrate in relation to the waveguide to effect electro-optical variation of the index of refraction upon application to the electrode of a modulating signal at a resonant frequency, and an interface port formed on the substrate for providing the modulating signal to the electrode from a signal source. Claim 9 further recites a first electrical element formed on the substrate and connected between the interface port and the electrode and a second electrical element formed on the substrate and connected between the interface port and ground.

The Action relies on Gopalakrishnan for all the features recited in claim 9. However, the Action does not point out, and Applicants cannot find, where in Gopalakrishnan there is a disclosure or suggestion of a first electrical element formed on the substrate and connected

between the interface port and the electrode and a second electrical element formed on the substrate and connected between the interface port and ground. Accordingly, claim 9 is considered allowable over Gopalakrishnan.

Independent claim 1 recites, among other features, an optical transmission system that includes an optical modulator similar to that recited in claim 2, including an electrical structure, formed on the substrate and coupled to the interface port and the electrode, an impedance of the optical modulator including the interface port and the electrical structure being substantially equal to the impedance of the signal source. The Action relies on Gopalakrishnan as showing this feature. As discussed above with regard to claim 2, this feature is not disclosed or suggested by Gopalakrishnan. Thus, claim 1 is considered allowable over Gopalakrishnan for at least this reason.

Applicants respectfully request that if the position is maintained that the above-highlighted features recited in claims 1, 2, 9, and 11 are shown in Gopalakrishnan, it be specifically pointed out where in the patent there is a basis for this view.

Claim 23, claims 3-8, 21-22 and 24, claims 10 and 25, and claims 12-15 and 26 depend ultimately from claims 1, 2, 9, and 11, respectively, and are considered allowable for at least the same reasons. In addition, these claims recite further features not disclosed or suggested by Gopalakrishnan.

For example, claim 21 recites that the impedance of the optical modulator is mostly reactive. The Action does not address this feature, and Applicants can find no disclosures or suggestion of this feature in Gopalakrishnan. Therefore, claim 21 is considered allowable over Gopalakrishnan for this additional reason.

New claim 23 recites that the active modulator electrode is linear. New claims 24-26 recite similar features. Gopalakrishnan does not disclose or suggest a linear active modulator electrode. Rather, in Gopalakrishnan, a ring-type modulator is described. Accordingly, claims 23-26 are considered allowable over Gopalakrishnan for this additional reason.

For the foregoing reasons, claims 1-15 and 21-26 are considered allowable. A Notice to this effect is respectfully solicited. If there are any questions, the Examiner is invited to contact

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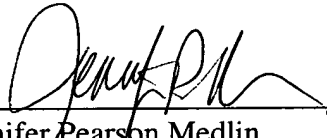
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the undersigned attorney at the telephone number given below.

A Credit Card Authorization Form (PTO-2038) is attached in the amount of \$182.00 (\$110.00 which is for a one month Extension of Time fee, and \$72.00 is the fee for four additional claims over 20). This amount is believed to be correct; however, the Commissioner is hereby authorized to charge any deficiency or credit any overpayment to Deposit Account No. 14-0629.

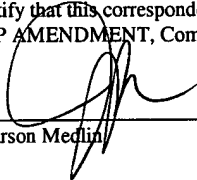
Respectfully submitted,



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